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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/804,083	03/13/2001	Katsutoshi Nosaki	107348-00096	9107

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EXAMINER
PARSONS, THOMAS H

ART UNIT	PAPER NUMBER
1745	19

DATE MAILED: 09/09/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

A 8-19

Office Action Summary	Application No.	Applicant(s)	
	09/804,083	NOSAKI ET AL.	
	Examiner	Art Unit	
	Thomas H Parsons	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 July 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6 and 9-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6, 9-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 March 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

Response to Amendment

This is in response to the Amendment filed 29 July 2003.

Claim Rejections - 35 USC § 103

1. The rejection of claims 1-8 under 35 U.S.C. 103(a) as being unpatentable over Suga et al. (5,667,647), and further in view of Dempsey et al. (4,311,569) has been **withdrawn** in view of Applicants' Amendment.

Double Patenting

2. The advisory that should claims 1-2, 4-5 and 7 be found allowable, claims 9-10, 12-13 and 14 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof has been **withdrawn** in view of Applicants Amendment.

Claim Rejections - 35 USC § 112

3. The rejection of claims 7-8 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention has been **withdrawn** in view of Applicants' Amendment.

Claim Rejections - 35 USC § 103

4. The rejection of claims 1-20 under 35 U.S.C. 103(a) as being unpatentable over Suga et al. (5,667,647), and further in view of Dempsey et al. (4,311,569) has been **withdrawn** in view of Applicants' Amendment.

DETAILED ACTION

Claim Rejections - 35 USC § 103

5. Claims 1-6 and 9-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suga et al. (5,667,647), and further in view of Dempsey et al. (4,311,569), and further in view of Oshima et al. (5,401,371)

Claim 1: Suga et al. disclose an electrolytic apparatus comprising a plurality of electrolytic cells each having an ion exchange film, an anode, and a cathode, the anode and cathode being arranged on opposite sides of the ion exchange film, respectively, the electrolytic cells being developed on a hypothetical plane and electrically connected in series to one another (Figure 1(A) showing an electrolytic cell having an ion exchange film 3, electrodes 7 of positive (anode) and negative pole (cathode) and vertically oriented on a horizontal plane; Figure 3 showing a plurality of electrolytic cells connected in series; col. 1:10-27; col. 1:56 through col. 2: 4; col. 3: 6-8 and 53-58).

Suga et al. do not disclose a solid polymer electrolyte membrane, and plate shaped anodes and cathodes having a uniform thickness throughout.

Dempsey et al. disclose in Figures 1 and 2 a solid polymer electrolyte membrane (13), and a plate shaped anode (11) and a cathode (12) having a uniform thickness throughout (col. 4: 44-62; and, col. 5: 26-40).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted the electrolytic cell with the electrolytic cell of Dempsey because both are concerned with an electrolytic cell for gas generation and Dempsey et al. teach an electrolytic cell that would have provided improved performance, improved stability and reduced cost by using catalytic electrodes to concentrate or produce gases by water electrolysis.

The Suga et al. combination discloses that anode and cathode current collectors well-known in the art may be used to engage the catalytic anode and catalytic cathode respectively to make electrical contact therewith (See Dempsey et al., col. 10:33-36). The Suga et al. combination does not, however, a current collect separating the anode and cathode from the electrolyte membrane.

Oshima et al. in Figure 2 disclose a current collector (28, 29, 36, 37 wherein 28, 29 act as one major collector, and 36, 37 as another major collector) disposed between the electrolyte membrane and both the anode (35) and the cathode (27)(col. 6: 35-col. 7: 8).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the apparatus of the Suga et al. combination by incorporating the current collectors of Oshima et al. because Oshima et al. teach an electrolytic cell that would have inhibited the hydrogen gas generation capability from deteriorating and enabled the accommodation of a plurality of stacked water electrolysis cells in a compact volume thereby improving the overall performance and efficiency of individual cells or cell stacks.

Claim 2: Suga et al. disclose a solar cell serving as a power supply for the plurality of water electrolytic cells (Figure 3 showing solar power supply 23 comprising solar collector 24; and, col. 4: 51-61).

Claim 3: Suga et al. disclose that the anodes of the plurality of electrolytic cells are disposed on one hypothetical plane, and the cathodes of the plurality of electrical cells are disposed on another hypothetical plane, and a single water/oxygen flow path and a single hydrogen flow path are shared by the plurality of water electrolytic cells (Figure 3 showing a plurality of electrolytic cells wherein the plurality of anodes and cathodes are oriented on separate vertical planes and flow paths 13a and 13b shared by the electrolytic cells connected in series; col. 3: 59-col. 4:39).

Claims 4 and 5: The Suga et al. combination discloses a panel shaped solar cell connected to the plurality of electrolytic cells (Suga et al., Figure 3 showing solar collector 24 which appears to be panel shaped; and col. 4: 51-61) but does not disclose that the solar cell is superposed on the plurality of electrolytic cells.

However, it has been held that the solar cell which appears to read on that disclosed by the Suga et al. combination except with regard to the position of the solar cell is unpatentable as it has been held that claims to a solar cell which read on the prior art except with regard to the position of the solar cell were held unpatentable because shifting the position of the solar cell would not have modified the operation of the device. In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950).

Claim 6: The rejection is as set forth above in claim I wherein further Dempsey et al. in Figures 1 and 2 disclose that the water electrolytic cell is laminated (i.e., anode 11 and cathode

12 are bonded directly to opposite surfaces of the solid polymer electrolyte membrane 13) and wherein anode 11 and cathode 12 are plate shape (i.e., the electrodes are thin electrodes bonded to membrane 13) (col. 2: 12-17; and, col. 7: 7-11 and 18-22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was substituted the electrolytic cell with the electrolytic cell of Dempsey et al. for the reasons as set forth in claim 1 above.

Claims 9 and 15: The rejection of claims 9 and 15 are as set forth above in claim 1.

Claims 10 and 16: The rejection of claims 10 and 16 are as set forth above in claim 2.

Claim 11: The rejection of claim 11 is as set forth above in claim 3.

Claims 12 and 13: The rejection of claims 12 and 13 are as set forth above in claims 4 and 5.

Claim 14: The rejection of claim 14 is as set forth above in claim 6.

Claim 15: The rejection of claim 15 is as set forth above in claim 3 wherein further Suga et al. in Figure 3 show the water electrolytic cells disposed side by side.

Claim 16: The rejection of claim 16 is as set for above in claim 10.

Claim 17: The rejection of claim 17 is as set forth above in claim 3.

Claim 18: The rejection of claim 18 is as set forth above in claim 4.

Claim 19: The rejection of claim 19 is as set forth above in claims 6-8.

6. Claims 1-6 and 9-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suga et al. (5,667,647), and further in view of Oshima et al. (5,401,371)

Claim 1: Suga et al. disclose an electrolytic apparatus comprising a plurality of electrolytic cells each having an ion exchange film, an anode, and a cathode, the anode and cathode being arranged on opposite sides of the ion exchange film, respectively, the electrolytic cells being developed on a hypothetical plane and electrically connected in series to one another (Figure 1(A) showing an electrolytic cell having an ion exchange film 3, electrodes 7 of positive (anode) and negative pole (cathode) and vertically oriented on a horizontal plane; Figure 3 showing a plurality of electrolytic cells connected in series; col. 1:10-27; col. 1:56 through col. 2: 4; col. 3: 6-8 and 53-58).

Suga et al. do not disclose a solid polymer electrolyte membrane, plate shaped anodes and cathodes having a uniform thickness throughout, and a current collect separating the anode and cathode from the electrolyte membrane.

Oshima et al. in Figure 2 disclose a solid polymer electrolyte membrane (21)(col. 1: 17-24; and col. 6: 40-43), plate shaped anodes (35) and cathodes (27) having a uniform thickness throughout, and a current collect (28, 29, 36, 37 wherein 28, 29 act as one major collector, and 36, 37 as another major collector) separating the anode and cathode from the electrolyte membrane (col. 6: 35-col. 7: 7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have substituted the electrolytic cell of Suga et al. with the electrolytic cell of Oshima et al. because Oshima et al. teach an electrolytic cell that would have inhibited the hydrogen gas generation capability from deteriorating and enabled the accommodation of a plurality of stacked water electrolysis cells in a compact volume thereby improving the overall performance and efficiency of individual cells or cell stacks.

Claim 2: Suga et al. disclose a solar cell serving as a power supply for the plurality of water electrolytic cells (Figure 3 showing solar power supply 23 comprising solar collector 24; and, col. 4: 51-61).

Claim 3: Suga et al. disclose that the anodes of the plurality of electrolytic cells are disposed on one hypothetical plane, and the cathodes of the plurality of electrical cells are disposed on another hypothetical plane, and a single water/oxygen flow path and a single hydrogen flow path are shared by the plurality of water electrolytic cells (Figure 3 showing a plurality of electrolytic cells wherein the plurality of anodes and cathodes are oriented on separate vertical planes and flow paths 13a and 13b shared by the electrolytic cells connected in series; col. 3: 59-col. 4:39).

Claims 4 and 5: The Suga et al. combination discloses a panel shaped solar cell connected to the plurality of electrolytic cells (Suga et al., Figure 3 showing solar collector 24 which appears to be panel shaped; and col. 4: 51-61) but does not disclose that the solar cell is superposed on the plurality of electrolytic cells.

However, it has been held that the solar cell which appears to read on that disclosed by the Suga et al. combination except with regard to the position of the solar cell is unpatentable as it has been held that claims to a solar cell which read on the prior art except with regard to the position of the solar cell were held unpatentable because shifting the position of the solar cell would not have modified the operation of the device. In re Japikse, 181 F.2d 1019, 86 USPQ 70 (CCPA 1950).

Claim 6: The rejection is as set forth above in claim I wherein further Oshima et al. in Figures 1 and 2 disclose that the water electrolytic cell is laminated (i.e. anode 35 and cathode 27

are bonded directly to opposite surfaces of the current collector which is in turn bonded directly to opposite sides of a solid polymer electrolyte membrane 21) and wherein anode 11 and cathode 12 are plate shape (i.e., the electrodes are thin electrodes bonded to membrane 13) (col. 2: 12-17; and, col. 7: 7-11 and 18-22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was substituted the electrolytic cell with the electrolytic cell of Dempsey et al. for the reasons as set forth in claim 1 above.

Claims 9 and 15: The rejection of claims 9 and 15 are as set forth above in claim 1.

Claims 10 and 16: The rejection of claims 10 and 16 are as set forth above in claim 2.

Claim 11: The rejection of claim 11 is as set forth above in claim 3.

Claims 12 and 13: The rejection of claims 12 and 13 are as set forth above in claims 4 and 5.

Claim 14: The rejection of claim 14 is as set forth above in claim 6.

Claim 15: The rejection of claim 15 is as set forth above in claim 3 wherein further Suga et al. in Figure 3 show the water electrolytic cells disposed side by side.

Claim 16: The rejection of claim 16 is as set for above in claim 10.

Claim 17: The rejection of claim 17 is as set forth above in claim 3.

Claim 18: The rejection of claim 18 is as set forth above in claim 4.

Claim 19: The rejection of claim 19 is as set forth above in claims 6-8.

Conclusion

1. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas H Parsons whose telephone number is (703) 306-9072. The examiner can normally be reached on M-F (7:00-4:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Pat Ryan can be reached on (703) 308-2383. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Thomas H Parsons
Examiner
Art Unit 1745

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September 5, 2003

Patrick Ryan
Supervisory Patent Examiner
Technology Center 1700